

## CLAIMS:

1. A compound loudspeaker drive unit comprising a first drive unit and a second drive unit arranged co-axial with respect to the center axis of the loudspeaker;  
 5 each drive unit comprising permanent magnet means and pole piece means together forming a magnetic circuit with a pole gap for exciting a voice coil assembly,  
 10 each pole gap providing magnetic field directed radially with respect to a center axis of the loudspeaker,  
 at least one of the permanent magnet means has a radially extending magnetization direction with respect to said center axis of the loudspeaker and in that the acoustic centers of said drive units substantially coincide.  
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2. A compound loudspeaker drive unit according to claim 1 provided with means for adjusting at least one of the drive units along said center axis with respect to the remaining drive unit.
3. A compound loudspeaker drive unit according to claim 1 wherein at least one of the magnetic circuits of the drive units is provided with air duct means for cooling the magnetic circuit and the voice coil therein.  
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4. A compound loudspeaker drive unit according to claim 1 wherein the pole gaps and the pole pieces making up said pole gaps, as seen in a plane perpendicular to said axial direction, are substantially circular or elliptical and in that the permanent magnet is a hollow cylinder or a hollow body with elliptical cross section, and that the hollow cylinder or hollow body is made up by a plurality of permanent magnet bars.  
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5. A compound loudspeaker drive unit according to claim 4 wherein the bars have a substantially rectangular cross section.

genetic claim

Fig. 2

Fig. 3

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6. A compound loudspeaker drive unit according to claim 4 wherein the bars have a substantially arched cross section. *Fig. 3*

7. A compound loudspeaker drive unit according to claim 4 wherein the bars are arranged to provide said air ducts between the bars. *Fig. 3*

5 8. A compound loudspeaker drive unit according to claim 3 wherein said air duct means comprises a pole gap, a chamber beneath the pole gap in the corresponding magnetic circuit, and ventilation duct provided in the magnetic circuit.

10 9. A compound loudspeaker drive unit according to claim 1 wherein the first and second drive unit have at least one common permanent magnet and the outer pole piece of the first drive unit is in magnetic contact with the inner pole piece of the second drive unit, and the inner pole piece of the first drive unit is in magnetic contact with the outer pole piece of the second drive unit. *Fig. 6*

15 10. A compound loudspeaker drive unit according to claim 1 wherein the compound drive unit comprises two individual drive units for reproducing sound in two partially overlapping sound frequency regions. *2 drive units*

20 11. A compound loudspeaker drive unit according to claim 1 wherein the compound drive unit comprises three individual drive units for reproducing sound in three sound frequency regions, the adjacent sound frequency regions partially overlapping. *3 drive units*

25 12. A compound loudspeaker drive unit comprising a first inner pole piece substantially formed as an hollow cylinder, forming a first cylindrical chamber, is connected to a first set of a plurality of permanent magnet bars with an arched cross section, the first set of magnet bars being on the opposite side in the radial direction connected to a first outer pole piece, the first inner pole piece, the first set of magnet bars and the first outer pole piece forming a first magnetic circuit and providing a first pole gap for receiving a first magnetic coil;

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a second inner pole piece substantially formed as an hollow cylinder connected to a second set of a plurality of permanent magnet bars with an arched cross section, the second set of magnet bars being on the opposite side in the radial direction connected to a second outer pole piece, the second inner pole piece, the second set of magnet bars and the second outer pole piece forming a second magnetic circuit and providing a second pole gap for receiving a second magnetic coil;

the permanent magnet bars of the first and second set have radially extending magnetization directions with respect to said center axis of the loudspeaker;

at least one of the magnetic circuits of the drive units is provided with air duct means for cooling the magnetic circuit and the voice coil therein, said air ducts provided between the permanent magnet bars; and

the second magnetic circuit is arranged to fit in the first cylindrical center chamber of the first inner pole piece.

13. A loudspeaker drive unit comprising a first drive unit comprising permanent magnet means and pole piece means together forming a magnetic circuit with a pole gap for exciting a voice coil assembly, each pole gap providing magnetic field directed radially with respect to a center axis of the loudspeaker, the permanent magnet means has a radially extending magnetization direction with respect to said center axis of the loudspeaker.

14. A loudspeaker drive unit according to claim 13 wherein the magnetic circuit of the drive unit is provided with air duct means for cooling the magnetic circuit and the voice coil therein.

15. A loudspeaker drive unit according to claim 13 wherein the pole gap and the pole pieces making up said pole gaps, as seen in a plane perpendicular to said axial direction, are substantially circular or elliptical and in that the permanent magnet is a hollow cylinder or a hollow body with elliptical cross section

wherein the hollow cylinder or hollow body is made up by a plurality of permanent magnet bars.

16. A loudspeaker drive unit according to claim 15 wherein the bars have a substantially rectangular cross section.

5 17. A loudspeaker drive unit according to claim 15 wherein the bars have a substantially arched cross section.

18. A loudspeaker drive unit according to claim 15 wherein the bars are arranged to provide said air ducts between the bars.

10 19. A loudspeaker drive unit according to claim 15 wherein said air duct means comprises a pole gap, a chamber beneath the pole gap in the corresponding magnetic circuit, and ventilation duct provided in the magnetic circuit.

20. A system for sound reinforcement for public premises comprising the compound drive unit defined in claim 1. 12 or 13.

15 21. A system for sound reinforcement for public premises comprising the compound drive unit defined in claim 12.

22. A system for sound reinforcement for public premises comprising the compound drive unit defined in claim 13.

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